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$m = 54° 17' 46''$ sec ·233888
$s = 63\ 18\ 48$ … … sec ·347646
$d' = 41\ 17\ 14$ … … … … cosec ·180565

$2\,)\,158\ 53\ 48$

$S = 79\ 26\ 54$ … … … … cos 9·262741
$S - s = 16\ 8\ 6$ sin 9·443891
$S - m = 25\ 9\ 8$ … … sin 9·628414

$C = 33'\ 24'' = 2004''$ log 3·301898
$c =$ 25 … … log 1·397940

$M =$ 954 28 log 2·979677

$N = 23·66$ log 1·374000

$M - N = 930·62$ log 2·968772

log 2·412078

$$C \, . \sin \frac{\theta}{2} - c \, . \sin \frac{\phi}{2} = 258''·3$$

2

$516·6 = +8'\ 36''·6$

$C - c = -32\ 59$

$-24\ 22·4$

$d' = 41\ 17\ 14$

True distance $d = 40\ 52\ 51·6$

Borda's method gives … … $d = 40\ 52\ 58$

Krafft's ,, ,, … … $d = 40\ 52\ 30$

This question is taken at random from a work on Nautical Astronomy.

## *Abnormal Appearance of Jupiter's Satellite IV. while in Transit on March* 12. By Henry Pratt.

At 10.30 P.M. the satellite was seen as a conspicuous spot on the great white belt just south of the equatorial zone, and it was observed until $11^{h}$ with power of 270, maintaining the whole time the same appearance, which I think is unusual even among the many dark transits which have been observed. Its form was the most singular feature, for instead of being round it was much elongated (elliptical or gibbous), and its major axis was not quite perpendicular to *Jupiter's* equator, but slightly in-

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clined to it. It may be well to mention that this distortion of form was not caused by maladjustment of my speculum, because I have an original apparatus for testing that, and for adjusting by when needed, and which reports most sensitively the slightest deviation. I knew, therefore, the cause was not instrumental.

The general tone of the satellite was very dark, but not nearly as black as a shadow, although in the absence of such a comparison it might have been supposed to be black by an inexperienced observer. Its preceding margin and northern end were marked by a really black shading, which had very much the form of an inverted comma. Had this black shading been of the nature of a dark limb, it should have appeared on the opposite side of the satellite.

18 *Preston Street, Brighton.*

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## *Occultations of* λ *Geminorum and* κ *Cancri.* By Henry Pratt.

### *Occultation of* λ *Geminorum on March* 6.

It occurred about the predicted time, but I omitted to note time precisely, owing to an unexpected phenomenon. The disappearance was observed by a power of 270 focussed very sharply on the star. Definition fair, but at times slightly unsteady.

While preparing to note the time of disappearance a diminution of the star's brightness suddenly commenced, and automatically at same instant I commenced counting beats of the sidereal clock. When I had counted the third second the star quite suddenly disappeared completely, and during the interval, which I estimated = $3^{s}\cdot2$, its brightness was *gradually diminishing*, until when last seen it was not more than one-fourth of the brightness it exhibited before the phenomenon began. I watched for half a minute, but no reappearance or projection on Moon's limb took place. The reappearance occurred within the opened webs of the micrometer, but was not seen until the star had emerged about $1^{s}$, owing to much rippling of the Moon's limb which commenced a few minutes previously.

### *Occultation of* κ *Cancri on March* 8.

The disappearance was observed through haze with power 270 focussed (as sharply as the state of definition would allow) upon the star. It occurred at $10^{h}\ 18^{m}\ 46^{s}$ G.M.T., and was what is

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